

**The explanation on related documents for IDS**

1) Japanese Patent Laid-Open Publication No. 2000-274232

Discloses a device, which causes fluctuation of an amount of accumulated S up and down having a reference rich air-fuel ratio as the center, when the amount of accumulated S becomes equal to or above a predetermined amount.

2) Japanese Patent Laid-Open Publication No. 2002-38932

Discloses a device, which performs S poisoning regeneration at the time of idling or at a low-speed operation.

3) Japanese Patent Laid-Open Publication No. 2003-166415

Discloses S poisoning regeneration performed by an intermittent rich operation.

4) Japanese Patent Laid-Open Publication No. 2000-161045

Discloses a device for not performing S poisoning regeneration at the time of idling or deceleration.